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**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. - 25. Canceled.

26. (Previously presented) The process according to claim 32 wherein the  $\text{Al}_2\text{O}_3$  membrane is formed from an  $\text{Al}_2\text{O}_3$  slurry.

27. - 31. Canceled.

32. (Currently amended) A process for manufacturing a capacitive vacuum measuring cell, comprising the following steps:

- a. manufacturing a first  $\text{Al}_2\text{O}_3$  housing plate (1) with outer and inner opposing surfaces and an outer periphery;
- b. forming an electrically conductive surface (7) on the inner surface of the first  $\text{Al}_2\text{O}_3$  housing plate to provide a first electrode of the capacitive vacuum measuring cell;
- c. manufacturing a second  $\text{Al}_2\text{O}_3$  housing plate (4) with an outer periphery;
- d. forming an opening in the second  $\text{Al}_2\text{O}_3$  housing plate (4) extending therethrough;
- e. sealing a connecting port (5) about the opening formed in the second  $\text{Al}_2\text{O}_3$  housing plate (4);
- f. manufacturing of an  $\text{Al}_2\text{O}_3$  membrane (2) having first and second opposing surfaces and an outer periphery, the membrane having a thickness within the range of 10

μm to 250 μm;

- g. forming an electrically conductive film (7) on the first surface of the  $\text{Al}_2\text{O}_3$  membrane (2) to provide a second electrode of the capacitive vacuum measuring cell;
- h. disposing the  $\text{Al}_2\text{O}_3$  membrane (2) between the inner surface of the first  $\text{Al}_2\text{O}_3$  housing plate (1) and the second  $\text{Al}_2\text{O}_3$  housing plate (4), with the first surface of the  $\text{Al}_2\text{O}_3$  membrane (2) facing the inner surface of the first  $\text{Al}_2\text{O}_3$  housing plate (1), and spacing the first surface of the  $\text{Al}_2\text{O}_3$  membrane (2) at a predetermined distance from the inner surface of the first  $\text{Al}_2\text{O}_3$  housing plate (1) to define a reference vacuum chamber (25) therebetween, and spacing the second  $\text{Al}_2\text{O}_3$  housing plate (4) at a predetermined distance from the second surface of the  $\text{Al}_2\text{O}_3$  membrane (2) to define a measurement vacuum chamber (26) therebetween; and
- i. sealing the outer periphery of the  $\text{Al}_2\text{O}_3$  membrane (2) to the outer peripheries of the first  $\text{Al}_2\text{O}_3$  housing plate (1) and the second  $\text{Al}_2\text{O}_3$  housing plate (4) to form a vacuum tight seal therebetween.

33. (Previously presented) The process recited by claim 32 wherein the step of manufacturing the  $\text{Al}_2\text{O}_3$  membrane (2) includes the steps of:

- a. forming the  $\text{Al}_2\text{O}_3$  membrane (2) from an  $\text{Al}_2\text{O}_3$  slurry;
- b. heating the membrane in a furnace a first time to sinter the membrane, with subsequent cool-down;
- c. heating the membrane a second time for smoothing the membrane, with subsequent cool down.

34. (Previously presented) The process recited by claim 33 wherein the step of forming the  $\text{Al}_2\text{O}_3$  slurry includes the steps of forming a ribbon-shaped  $\text{Al}_2\text{O}_3$  green body upon a carrier foil, and subsequently pulling the ribbon-shaped  $\text{Al}_2\text{O}_3$  green body from the carrier foil.

35. (Previously presented) The process recited by claim 32 including the further steps of forming a first electrical, vacuum-tight feedthrough (6) through first  $\text{Al}_2\text{O}_3$  housing plate (1), and coupling said first electrical, vacuum-tight feedthrough (6) to the electrically conductive surface (7) formed on the inner surface of the first  $\text{Al}_2\text{O}_3$  housing plate to effect electrical coupling thereto.

36. (Previously presented) The process recited by claim 34 including the further steps of forming a second electrical, vacuum-tight feedthrough (6) through first  $\text{Al}_2\text{O}_3$  housing plate (1), and coupling said second electrical, vacuum-tight feedthrough (6) to the electrically conductive surface (7) formed on the first surface of the  $\text{Al}_2\text{O}_3$  membrane (2) to effect electrical coupling thereto.

37. (Previously presented) The process recited by claim 32 including the further steps of forming a getter opening (13/14) within the first  $\text{Al}_2\text{O}_3$  housing plate (1) communicating with reference vacuum chamber (25), disposing a getter (10) within said getter opening (13/14), pumping down reference vacuum chamber (25) to evacuate matter therefrom, and activating the getter (10) to further lower the pressure within reference vacuum chamber (25).

38. (Previously presented) The process recited by claim 37 including the further steps of

extending the getter opening (13/14) through first  $\text{Al}_2\text{O}_3$  housing plate (1), applying a vacuum to getter opening (13/14) to pump down the reference vacuum chamber (25), and subsequently applying heat to a cover (8) overlying getter opening (13/14) to form a vacuum-tight seal between the cover (8) and the first  $\text{Al}_2\text{O}_3$  housing plate (1) and simultaneously activating the getter (10).

39. (New) The process recited by claim 32 wherein said step of sealing the outer periphery of the  $\text{Al}_2\text{O}_3$  membrane to the outer peripheries of the first  $\text{Al}_2\text{O}_3$  housing plate and the second  $\text{Al}_2\text{O}_3$  housing plate includes the steps of:

applying a glass paste to the outer periphery of the  $\text{Al}_2\text{O}_3$  membrane;

disposing the  $\text{Al}_2\text{O}_3$  membrane between the outer peripheries of first  $\text{Al}_2\text{O}_3$  housing plate and the second  $\text{Al}_2\text{O}_3$  housing plate;

heating the  $\text{Al}_2\text{O}_3$  membrane and the first and second  $\text{Al}_2\text{O}_3$  housing plates to a temperature above 330 degrees Centigrade to sealingly join the outer periphery of the  $\text{Al}_2\text{O}_3$  membrane to the outer peripheries of the first  $\text{Al}_2\text{O}_3$  housing plate and the second  $\text{Al}_2\text{O}_3$  housing plate.

40. (New) The process recited by claim 32 wherein said step of sealing the outer periphery of the  $\text{Al}_2\text{O}_3$  membrane to the outer peripheries of the first  $\text{Al}_2\text{O}_3$  housing plate and the second  $\text{Al}_2\text{O}_3$  housing plate includes the steps of:

disposing the  $\text{Al}_2\text{O}_3$  membrane between the outer peripheries of first  $\text{Al}_2\text{O}_3$  housing plate and the second  $\text{Al}_2\text{O}_3$  housing plate;

applying a solder to the joint between the outer periphery of the  $\text{Al}_2\text{O}_3$  membrane and the

outer peripheries of the first  $\text{Al}_2\text{O}_3$  housing plate and the second  $\text{Al}_2\text{O}_3$  housing plate; and heating the  $\text{Al}_2\text{O}_3$  membrane and the first and second  $\text{Al}_2\text{O}_3$  housing plates to a temperature above 300 degrees Centigrade to sealingly join the outer periphery of the  $\text{Al}_2\text{O}_3$  membrane to the outer peripheries of the first  $\text{Al}_2\text{O}_3$  housing plate and the second  $\text{Al}_2\text{O}_3$  housing plate.

41. (New) The process recited by claim 32 wherein said step of sealing the outer periphery of the  $\text{Al}_2\text{O}_3$  membrane to the outer peripheries of the first  $\text{Al}_2\text{O}_3$  housing plate and the second  $\text{Al}_2\text{O}_3$  housing plate includes the steps of:

disposing the  $\text{Al}_2\text{O}_3$  membrane between the outer peripheries of first  $\text{Al}_2\text{O}_3$  housing plate and the second  $\text{Al}_2\text{O}_3$  housing plate;

welding the outer periphery of the  $\text{Al}_2\text{O}_3$  membrane to the outer peripheries of the first  $\text{Al}_2\text{O}_3$  housing plate and the second  $\text{Al}_2\text{O}_3$  housing plate at a welding temperature above 300 degrees Centigrade.

42. (New) The process recited by claim 32 wherein said step of sealing the outer periphery of the  $\text{Al}_2\text{O}_3$  membrane to the outer peripheries of the first  $\text{Al}_2\text{O}_3$  housing plate and the second  $\text{Al}_2\text{O}_3$  housing plate includes the steps of:

disposing the  $\text{Al}_2\text{O}_3$  membrane between the outer peripheries of first  $\text{Al}_2\text{O}_3$  housing plate and the second  $\text{Al}_2\text{O}_3$  housing plate;

brazing the outer periphery of the  $\text{Al}_2\text{O}_3$  membrane to the outer peripheries of the first  $\text{Al}_2\text{O}_3$  housing plate and the second  $\text{Al}_2\text{O}_3$  housing plate with a corrosion resistant brazing material at a temperature above 300 degrees Centigrade.

43. (New) The process recited by claim 32 wherein said step of sealing the outer periphery of the  $\text{Al}_2\text{O}_3$  membrane to the outer peripheries of the first  $\text{Al}_2\text{O}_3$  housing plate and the second  $\text{Al}_2\text{O}_3$  housing plate includes the steps of:

disposing the  $\text{Al}_2\text{O}_3$  membrane between the outer peripheries of first  $\text{Al}_2\text{O}_3$  housing plate and the second  $\text{Al}_2\text{O}_3$  housing plate;

diffusion bonding the outer periphery of the  $\text{Al}_2\text{O}_3$  membrane to the outer peripheries of the first  $\text{Al}_2\text{O}_3$  housing plate and the second  $\text{Al}_2\text{O}_3$  housing plate at a temperature above 300 degrees Centigrade.

44. (New) The process recited by claim 32 wherein the membrane has a thickness within the range of 10  $\mu\text{m}$  to 120  $\mu\text{m}$ .

45. (New) The process recited by claim 32 wherein the membrane has a diameter within the range of 5 mm to 80 mm.

46. (New) The process recited by claim 32 wherein the membrane has a diameter within the range of 5 mm to 40 mm.

47. (New) The process recited by claim 32 wherein the membrane material has a grain size less than 20  $\mu\text{m}$ .

48. (New) The process recited by claim 32 wherein the membrane material has a grain size less than 10  $\mu\text{m}$ .

49. (New) The process recited by claim 33 wherein the step of heating the  $\text{Al}_2\text{O}_3$  membrane a second time for smoothing the membrane includes the step of pressing the membrane between two flat plates.